

WHAT IS CLAIMED IS:

1. A contamination barrier that passes through radiation from a radiation source and captures debris coming from the radiation source, said contamination barrier comprising:
an inner ring;
an outer ring; and
a plurality of lamellas extending in a radial direction from a main axis, each of said lamellas being positioned in a respective plane that comprises said main axis,
wherein at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring.
2. A contamination barrier according to claim 1, wherein said lamellas are thermally connected to at least one of said inner and outer ring.
3. A contamination barrier according to claim 1, further comprising a first shield that protects said inner ring from being hit by radiation from said radiation source.
4. A contamination barrier according to claim 3, further comprising a second shield that blocks thermal radiation from said first shield.
5. A contamination barrier according to claim 4, further comprising a third shield that reduces heating of the first shield caused by direct radiation from the radiation source, wherein said third shield is disposed upstream of said first shield with respect to the direction of propagation of the radiation emitted by the radiation source along the main axis.
6. A contamination barrier according to claim 5, wherein said third shield is substantially thermally isolated with respect to said first shield.

7. A contamination barrier according to claim 6, wherein said third shield is connected to said first shield.

8. A contamination barrier according to claim 3, further comprising at least one cooling spoke to support said first shield, said at least one cooling spoke being thermally connected to said outer ring.

9. A contamination barrier according to claim 8, wherein said first shield comprises a plurality of shield members, each shield member being connected to said outer ring via a separate cooling spoke.

10. A contamination barrier according to claim 4, further comprising a first cooling device arranged to cool at least one of said first and second shields.

11. A contamination barrier according to claim 10, further comprising a second cooling device arranged to cool said inner ring.

12. A contamination barrier according to claim 11, further comprising a third cooling device arranged to cool said outer ring.

13. A contamination barrier according to claim 1, wherein said lamellas are curved in said respective planes, and said inner and outer ring are shaped as slices of a conical pipe.

14. A contamination barrier according to claim 1, wherein a first side of said lamellas facing the radiation source is thicker than the rest of said lamellas.

15. A contamination barrier that passes through radiation from a radiation source and captures debris coming from the radiation source, said contamination barrier comprising:
a plurality of lamellas; and
a support structure that slidably engages said lamellas,
wherein said lamellas and said support structure are configured and arranged to allow said lamellas to expand and contract in response to changes in temperature.

16. A contamination barrier according to claim 15, wherein said support structure comprises an inner ring and an outer ring and said plurality of lamellas are slidably connected to at least one of said inner and outer ring.

17. A contamination barrier that permits radiation to pass therethrough and captures debris from a radiation source generated by the radiation source, said contamination barrier including a support structure and a plurality of thin plate members mounted on said support structure, said radiation propagating along an optical axis and said thin plate members being disposed along a plane that includes said axis, said plate members being slidably movable relative to said support structure.

18. A radiation system comprising:
a contamination barrier that passes through radiation from a radiation source and captures debris coming from the radiation source; and
a collector that collects radiation passing said contamination barrier,
wherein said contamination barrier comprises an inner ring, an outer ring, and a plurality of lamellas extending in a radial direction from a main axis, each of said lamellas being positioned in a respective plane that comprises said main axis, and at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring.

19. A radiation system comprising:

a contamination barrier that passes through radiation from a radiation source and captures debris coming from said radiation source, said contamination barrier comprising a plurality of lamellas; and

a collector that collects radiation passing said contamination barrier, wherein a surface of said lamellas is covered with the same material as an optical surface of said collector.

20. A lithographic projection apparatus comprising:

a radiation system to provide a beam of radiation;

a support structure to support a patterning structure to be irradiated by a beam of radiation to pattern said beam of radiation;

a substrate support to support a substrate; and

a projection system to image an irradiated portion of the patterning structure onto a target portion of the substrate,

wherein said radiation system comprises a contamination barrier that passes through radiation from a radiation source and captures debris coming from the radiation source, said contamination barrier comprising an inner ring, an outer ring, and a plurality of lamellas extending in a radial direction from a main axis, each of said lamellas being positioned in a respective plane that comprises said main axis, and at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring; and a collector for collecting radiation passing said contamination barrier.

21. A lithographic projection apparatus comprising:

a radiation system to provide a beam of radiation;

a support structure to support a patterning structure to be irradiated by a beam of radiation to pattern said beam of radiation;

a substrate support to support a substrate; and

a projection system to image an irradiated portion of the patterning structure onto a target portion of the substrate,

wherein said radiation system comprises a contamination barrier for passing through radiation from a radiation source and for capturing debris coming from said radiation source, said contamination barrier comprising a plurality of lamellas; and a collector for collecting radiation passing said contamination barrier, wherein a surface of said lamellas is covered with the same material as an optical surface of said collector.

22. A method of manufacturing an integrated structure by a lithographic process, said method comprising:

radiating a beam of radiation through a radiation system;

providing a support structure to support a patterning structure to be irradiated by the beam of radiation to pattern said beam of radiation;

providing a substrate support to support a substrate; and

providing a projection system to image an irradiated portion of the patterning structure onto a target portion of the substrate,

wherein said radiating the beam of radiation through the radiation system comprises passing radiation from a radiation source through a contamination barrier comprising an inner ring, an outer ring, and a plurality of lamellas extending in a radial direction from a main axis, wherein each of said lamellas being positioned in a respective plane that comprises said main axis, and at least one outer end of each of said lamellas is slidably connected to at least one of said inner and outer ring; and collecting radiation passing said contamination barrier.

23. A method of manufacturing an integrated structure by a lithographic process, said method comprising:

radiating a beam of radiation through a radiation system;

providing a support structure to support a patterning structure to be irradiated by the beam of radiation to pattern said beam of radiation;

providing a substrate support to support a substrate; and

providing a projection system to image an irradiated portion of the patterning structure onto a target portion of the substrate,

wherein said radiating the beam of radiation through the radiation system comprises passing radiation from a radiation source through a contamination barrier comprising a plurality of lamellas, capturing debris from said radiation source, and collecting radiation passing said contamination barrier with a collector, wherein a surface of said lamellas is covered with the same material as an optical surface of said collector.

24. A method of manufacturing an integrated structure by a lithographic process, said method comprising:

- generating a beam of radiation with a radiation source;
- capturing debris from the radiation source;
- collecting radiation passing said contamination barrier;
- patterning said beam of radiation with a patterning structure; and
- imaging an irradiated portion of the patterning structure onto a target portion of a substrate,

wherein said capturing debris comprises providing a support structure and a plurality of lamellas that are slidably engaged with the support structure so as to allow the plurality of lamellas to expand and contract in response to changes in temperature.